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EXAMINER	
THOMPSON, JAMES A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/671,393	Applicant(s) SHARMA ET AL.
	Examiner James A. Thompson	Art Unit 2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-3, 12-13 and 22-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Matsuda (US Patent 5,973,792).

Regarding claims 1, 12 and 22: Matsuda discloses an apparatus (figure 9 of Matsuda) comprising an input/output interface (figure 9(101) and column 9, lines 13-18 of Matsuda); a memory (figure 9(150) and column 9, lines 5-6 of Matsuda); and a show-through image information compensation device (figure 9 (103) and column 9, lines 26-31 of Matsuda); wherein image data for the front side image (figure 7A(1) of Matsuda), the back side image (figure 7A(2) of Matsuda), and the adjacent side image (figure 7A(3) of Matsuda) is received through the input/output interface (column 7, lines 19-24 and lines 40-44 of Matsuda) and stored in the memory (column 9, lines 26-31 of Matsuda); the show-through compensation device determines approximate absorbency data (column 4, lines 12-29 of Matsuda) for the substrates on which the combination of the back and adjacent side images are printed from received image data for the front side image (g_i), the back side image (g_{i-1}(left page) or g_{i+1}(right page)), and the adjacent side image (g_{i-2}(left page) or g_{i+2}(right page)) that shows through the image bearing substrate (column 10, lines 41-50 of Matsuda); and the show-through

compensation device determines show-through compensated density data (column 10, equations (4), (5),(4′),(5′) and lines 23-29 of Matsuda) for the substrate based on the scanned density data and the approximate absorbency data (column 10, lines 51-54 of Matsuda).

Further regarding claim 1: The apparatus of claim 12 performs the method of claim 1.

Regarding claim 2: Matsuda discloses placing a bound collection of duplex printed pages (figure 1A and column 3, lines 53-60 of Matsuda) on an image scanning device (figure 5 and column 7, lines 53-60 of Matsuda); scanning a facing page of the bound collection (column 9, lines 32-36 of Matsuda); receiving image information comprising facing page image information (column 10, lines 1-5 of Matsuda), backside image information, and adjacent page information (column 10, lines 6-9 of Matsuda); and scanning the adjacent page (figure 7A(4) and figure 7B(4) of Matsuda) without the intervening facing page (figure 7A(2) and figure 7B(2) of Matsuda) and backside image (figure 7A(3) and figure 7B(3) of Matsuda) information (column 10, lines 16-25 of Matsuda). When scanning the right side page in western format (figure 7A(2) of Matsuda) or the left side page in eastern format (figure 7B(2) of Matsuda), the corresponding adjacent page ((g_{i-2}) or (g_{i+2})) (figure 7A(4) and figure 7B(4) of Matsuda) is read without the intervening facing page (g_i) and backside image ((g_{i-1}) or (g_{i+1})) information since the facing page and backside page have been turned to reveal the adjacent page, as can be clearly seen in figures 7A and 7B of Matsuda.

Matsuda further discloses determining scanned density data (D_i) for the facing page (column 10, lines 14-17 of Matsuda) and

effective absorbency data (column 4, lines 5-11 of Matsuda) for the combined back and adjacent page information (column 10, equations (4),(5),(4′),(5′) and column 4, lines 12-29 of Matsuda); determining show-through compensated density data (column 4, lines 5-11 of Matsuda); transforming the show-through compensated density data for one or all of the images into show-through compensated reflectance image data (column 4, lines 12-29 of Matsuda); and removing show-through image information based on the density and reflectance calculations (column 10, lines 45-48 of Matsuda), leaving only substantially the facing page image information (column 10, lines 51-54 of Matsuda).

Regarding claim 3: Matsuda discloses spatially filtering the effective absorbency data (column 4, lines 12-29 of Matsuda) for at least one of the back or adjacent images (column 10, equations (4),(5),(4′),(5′) and lines 23-29 of Matsuda). The absorbency data for the back and adjacent images (column 4, lines 12-29 of Matsuda) and the background density component (b) is used to filter the image components of the back ((g_{i-1}) or (g_{i+1})) and adjacent ((g_{i-2}) or (g_{i+2})) side images by subtracting the background density component from both the back and adjacent side images (such as (g_{i-1}-b) and (g_{i-2}-b) in equation (4′)) and multiplying the result by the appropriate absorbency data (such as [(g_{i-1}-b)xR] and ([g_{i-2}-b)xT] in equation (4′)) (column 10, equations (4),(5),(4′),(5′) and lines 23-29 of Matsuda).

Matsuda further discloses subtracting the spatially filtered absorbency data from the scanned density data for the front side image (column 10, lines 51-54 of Matsuda).

Regarding claim 13: Matsuda discloses a data alignment circuit for aligning image data of the front, back and adjacent side images (figure 12 and column 10, lines 1-5 of Matsuda).

Figure 12 of Matsuda clearly requires that the image data of the front, back and adjacent sides be aligned. The data alignment circuit is the circuits upon which the appropriate embodied software is stored and executed.

Regarding claim 23: Matsuda discloses removing show-through image information from back and adjacent side images (column 10, lines 6-9 of Matsuda), from image data generated by scanning a duplex printed document (column 10, lines 1-5 of Matsuda), wherein the show-through compensation is based on density and absorbency of a substrate (column 4, lines 12-29 of Matsuda) described by a linearized relationship between the scanned data for the front (g_i), back ((g_{i-1}) or (g_{i+1})) and adjacent ((g_{i-2}) or (g_{i+2})) side images behind the front and back sides (figure 7A; and column 10, equations (4),(5),(4'),(5'), lines 23-29 and lines 51-54 of Matsuda), and wherein the front side image data is in density space (column 10, lines 20-26 of Matsuda). The background density component (b) is directly subtracted from the pixel values (g_{i-1} and g_{i-2}) (column 10, lines 20-26 of Matsuda). For equations (4),(5),(4') and (5') to be dimensionally valid equations, the pixel value of the front page must be in density space. Further, as the book scanning progresses, the back and adjacent will, in their turn, be front pages. Therefore, g_i must also be in density space.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole

> would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4-7, 11, 14-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US Patent 5,973,792) in view of Bilgen ("Restoration of Noisy Images Blurred by a Random Point Spread Function", by Mehmet Bilgen and Hsien-Sen Hung, *IEEE International Symposium on Circuits and Systems*, 1-3 May 1990, volume 1, pages 759-762).

Regarding claim 4: Matsuda does not disclose expressly using a filter corresponding to a pre-determined show-through point spread function.

Bilgen discloses using a pre-determined point spread function (page 759, column 2, lines 43-45 of Bilgen).

Matsuda and Bilgen are combinable because they are from the same field of endeavor, namely imaging and data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a pre-determined point spread function, as taught by Bilgen, for the spatial filter. The motivation for doing so would have been to restore the image data that is blurred (page 759, column 2, lines 43-45 of Bilgen). Therefore, it would have been obvious to combine Bilgen with Matsuda to obtain the invention as specified in claim 4.

Regarding claim 5: Matsuda does not disclose expressly using a filter corresponding to a show-through point spread function estimated from the scanned data for the three sides.

Bilgen discloses using a point spread function (page 759, column 2, lines 43-45 of Bilgen) estimated from the scanned data

(page 759, column 2, line 46 to page 760, column 1, line 1 of Bilgen).

Matsuda and Bilgen are combinable because they are from the same field of endeavor, namely imaging and data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a point spread function estimated from the scanned data, as taught by Bilgen, for the spatial filter, said scanned data being the scanned data of the three sides, as taught by Matsuda. The motivation for doing so would have been to restore the image data that is blurred (page 759, column 2, lines 43-45 of Bilgen). Therefore, it would have been obvious to combine Bilgen with Matsuda to obtain the invention as specified in claim 5.

Regarding claim 6: Since the spatial filter applies filtering to digital data, it is inherent that said spatial filter is a digital filter.

Regarding claim 14: Matsuda discloses means for determining scanned density data for the front side image from the received image data for the front side (figure 2(Dm) and column 4, lines 32-37 of Matsuda); means for approximating an absorbency of the combination of back and adjacent sides (column 4, lines 12-29 of Matsuda); and means for determining the show-through compensated density data (Dg1) (column 4, lines 32-35 of Matsuda) for the front side from the scanned density data and the approximated absorbencies (R,T) (column 10, lines 45-54 of Matsuda).

Matsuda does not disclose expressly estimating a show-through point spread function; and that the show-through compensated density data is also determined from the estimated show-through point spread function.

Bilgen discloses estimating and using a pre-determined point spread function (page 759, column 2, lines 43-45 of Bilgen).

Matsuda and Bilgen are combinable because they are from the same field of endeavor, namely imaging and data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a pre-determined point spread function, as taught by Bilgen, as the show-through function. Thus, the show-through compensated density data would also be determined from said show-through point spread function. The motivation for doing so would have been to restore the image data that is blurred (page 759, column 2, lines 43-45 of Bilgen). Therefore, it would have been obvious to combine Bilgen with Matsuda to obtain the invention as specified in claim 14.

Regarding claim 15: Matsuda discloses that the show-through correction is based on a linearized relationship between the image data for the front (g_i), back ((g_{i-1}) or (g_{i+1})) and adjacent ((g_{i-2}) or (g_{i+2})) sides, as clearly shown in column 10, equations (4),(5),(4'),(5') of Matsuda.

Further regarding claim 16: Bilgen further discloses that said point spread function is applied as a filter (page 759, column 1, lines 40-44 of Bilgen). Since the filter is applied to digital data, then said filter is inherently a digital filter.

Further regarding claims 7 and 17: Bilgen further discloses that said digital filter uses an iterative process (page 759, column 1, lines 40-44 of Bilgen) based on the average mean square error (page 761, column 1, lines 2-5 of Bilgen), and is thus an adaptive filter.

Regarding claims 11 and 21: Matsuda does not disclose expressly that the show-through compensated density data is determined using the relationship: $D_1(x,y) = D_1^s(x,y) - H(x,y) * A_{23}^e(x,y)$.

Bilgen discloses an equation in the frequency domain for determining the compensated density data in terms of the point spread function (page 760, column 2, lines 4-9 of Bilgen). $H(k,l) = \overline{H}(k,l) + \Delta H(k,l)$ is the point spread function (page 759, column 2, lines 26-28 of Bilgen). The estimated image is given by $F(k,l)$ and its Fourier transform in two dimensions is given by $\hat{F}(k,l)$ (page 760, column 2, lines 61-65 of Bilgen). $G(k,l)$ is the 2-D Fourier transform of the distorted image (page 760, column 2, lines 58-60 of Bilgen). The distortion compensation data ($\Xi(k,l)$) is given by the equation $\Xi(k,l) = G(k,l) - H(k,l)\hat{F}(k,l)$ (page 760, column 2, lines 4-9 of Bilgen). Since the equation is given in the frequency domain (page 760, column 2, lines 7-8 of Bilgen), the equivalent form of the equation in the spatial domain would given by the equation $\Xi(x,y) = G(x,y) - H(x,y) * F(x,y)$, where (*) represents convolution. It is well known in the art that, when an equation is transformed from the Fourier domain to the spatial domain, the Fourier transformed variables are replaced with their corresponding spatially-dependent variables and multiplication is replaced with convolution. The equation for $\Xi(k,l)$ is the same as the equation $D_1(x,y) = D_1^s(x,y) - H(x,y) * A_{23}^e(x,y)$ since the variables representing the same quantities correspond to each other.

Matsuda and Bilgen are combinable because they are from the same field of endeavor, namely imaging and data processing. At the time of the invention, it would have been obvious to a

person of ordinary skill in the art to use the image correction equation of Bilgen to compensate for the density data. The motivation for doing so would have been to restore the image data that is blurred (page 759, column 2, lines 43-45 of Bilgen), thus correcting certain image defects. Therefore, it would have been obvious to combine Bilgen with Matsuda to obtain the invention as specified in claims 11 and 21.

5. Claims 8-9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US Patent 5,973,792) in view of Numakura (US Patent 5,371,616).

Regarding claim 8: Matsuda does not disclose expressly determining a logarithm (or approximation thereof) of the ratio of the received image data for a region of the image bearing substrate containing an image and for a region of the image having no image on either the front or back sides.

Numakura discloses determining a logarithm (or approximation thereof) of the ratio of the received image data for a region of the image bearing substrate containing an image (I) and for a region of the image having no image on either the front or back sides (I_0) (column 9, lines 44-53 of Numakura). In order for the reference light intensity value (I_0) to be the same as the incident light intensity, it is inherent that there can be no image on either the front or back sides of the reference region.

Matsuda and Numakura are combinable because they are from the same field of endeavor, namely the computation of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the relationship taught by Numakura to determine the scanned density data. The

motivation for doing so would have been that said determination is needed for the purpose of halftoning the image data (column 9, lines 41-43 of Numakura). Therefore, it would have been obvious to combine Numakura with Matsuda to obtain the invention as specified in claim 8.

Regarding claim 9: Matsuda does not disclose expressly that the scanned density of the front side is determined using the relationship: $D_1^s(x,y) = -\ln\left(R_1^s(x,y) / R_p^w\right)$ where ln() denotes the natural logarithm.

Numakura discloses that the relationship between the density value and the reflectance value is given by the relationship $D = \log(I_0 / I)$ where I_0 is the incident light intensity and I is the reflected light intensity (column 9, lines 44-53 of Numakura). The equation can also be written as $D = -\log(I / I_0)$. $R_1^s(x,y)$ corresponds to I since both are the reflected light intensity and $D_1^s(x,y)$ is the corresponding density. R_p^w is the reference reflectance value and therefore corresponds to the value I_0. Numakura uses a base-10 logarithm instead of a natural logarithm, but this is a simple design choice since the difference between a natural log and a base-10 log is the factor $\log_{10}(e)$. The use of a natural logarithm as opposed to a base-10 logarithm simply changes the range of density values.

Matsuda and Numakura are combinable because they are from the same field of endeavor, namely the computation of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the relationship taught by Numakura to determine the density of the front side.

The motivation for doing so would have been that said conversion is needed for the purpose of halftoning the image data (column 9, lines 41-43 of Numakura). Therefore, it would have been obvious to combine Numakura with Matsuda to obtain the invention as specified in claim 9.

Regarding claim 19: Matsuda does not disclose expressly that the normalized reflectance of the back side image is determined by the show-through image information compensation device using the relationship: $T_3^s(x,y) \equiv R_3^s(x,y) / R_p^w$.

Numakura discloses a relationship for normalized reflectance ($T=I/I_0$) (column 9, lines 47-54 of Numakura). $R_3^s(x,y)$ corresponds to I since both are the reflected light intensity and $T_3^s(x,y)$ is the corresponding normalized reflectance. R_p^w is the reference reflectance value and therefore corresponds to the value I_0.

Matsuda and Numakura are combinable because they are from the same field of endeavor, namely the computation of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the relationship taught by Numakura to determine the normalized reflectance of the back side. The motivation for doing so would have been that said relationship is needed in determining the density of the image data (column 9, lines 47-50 of Numakura). Therefore, it would have been obvious to combine Numakura with Matsuda to obtain the invention as specified in claim 19.

6. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US Patent 5,973,792) in view of Balanis (*Advanced Engineering Electromagnetics*, by Constantine

A. Balanis, John Wiley & Sons, copyright 1989) and Numakura (US Patent 5,371,616).

Regarding claims 10 and 20: Matsuda does not disclose expressly that the absorbency of the back and adjacent sides is approximated using the relationship: $A_{23}^{e}(x,y) \equiv \left[1 - T_2^2(x,y)T_3^s(x,y)\right]$ where $T_3^s(x,y)$ and $T_2^2(x,y)$ are obtained from the scanned data as $T_3^s(x,y) \equiv R_3^s(x,y) / R_p^w$ and $T_2^2(x,y) \approx R_2^2(x,y) / R_p^w$.

Balanis discloses the relationship between reflection and transmission of electromagnetic fields (page 222, figure 5-17 and page 223, equation 5-69c of Balanis), which is based on the fact that the fraction of the reflected field (Γ_{12}) plus the fraction of the transmitted field (T_{21}) are equal to one. Since the back and adjacent sides are in direct physical contact with one another, the reflection of the two pages together can be written as $\Gamma_{eq}(x,y) = \Gamma_3^s(x,y)\Gamma_2^2(x,y)$ where Γ_{eq} is the equivalent reflectance of the back and adjacent sides. Given the general relationship Γ=1-T, the absorbency of the back and adjacent sides can be expressed by the equation $A_{23}^{e}(x,y) \equiv \left[1 - T_2^2(x,y)T_3^s(x,y)\right]$ since the absorbency of the back and the adjacent sides is a measure of how much shows through to the front side. A measure of the amount that shows through would inherently be a measure of the reflectance from the back and adjacent sides.

Matsuda and Balanis are combinable because they are from the same field of endeavor, namely the calculation of reflection data from substrates. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the concepts of electromagnetic reflection and transmission for the image data of the back and adjacent sides. The

motivation for doing so would have been that the reflections from the back and adjacent pages are significant when correcting for images on a book reader (figure 5-20 and page 230, lines 1-4 of Balanis). Therefore, it would have been obvious to combine Balanis with Matsuda.

Matsuda in view Balanis does not disclose expressly that $T_3^s(x,y)$ and $T_2^2(x,y)$ are obtained from the scanned data as $T_3^s(x,y) \equiv R_3^s(x,y) / R_p^w$ and $T_2^2(x,y) \approx R_2^2(x,y) / R_p^w$.

Numakura discloses a relationship for normalized reflectance ($T=I/I_0$) (column 9, lines 47-54 of Numakura). $R_3^s(x,y)$ and $R_2^2(x,y)$ corresponds to I since both are the reflected light intensity. $T_3^s(x,y)$ and $T_2^2(x,y)$ are the corresponding normalized reflectances. R_p^w is the reference reflectance value and therefore corresponds to the value I_0.

Matsuda in view Balanis is combinable with Numakura because they are from the same field of endeavor, namely the computation of modified image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the relationship taught by Numakura to determine the normalized reflectance of the back and adjacent sides. The motivation for doing so would have been that said relationship is needed in determining the density of the image data (column 9, lines 47-50 of Numakura). Therefore, it would have been obvious to combine Numakura with Matsuda in view of Balanis to obtain the invention as specified in claims 10 and 20.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US Patent 5,973,792) in view of

Bilgen ("Restoration of Noisy Images Blurred by a Random Point Spread Function", by Mehmet Bilgen and Hsien-Sen Hung, *IEEE International Symposium on Circuits and Systems*, 1-3 May 1990, volume 1, pages 759-762) and Numakura (US Patent 5,371,616).

Regarding claim 18: Matsuda in view of Bilgen does not disclose expressly that said show-through image compensation device determines the scanned density by determining a logarithm of the ratio of the received image data of a region having an image on the image bearing substrate and received image data of a region having no image on the image bearing substrate.

Numakura discloses determining a logarithm of the ratio of the received image data of a region having an image on the image bearing substrate (I) and received image data of a region having no image on the image bearing substrate (I_0) (column 9, lines 44-53 of Numakura). In order for the reference light intensity value (I_0) to be the same as the incident light intensity, it is inherent that there can be no image on the image bearing substrate.

Matsuda in view of Bilgen is combinable with Numakura because they are from the same field of endeavor, namely the computation of modified image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the relationship taught by Numakura to determine the scanned density data. The motivation for doing so would have been that said determination is needed for the purpose of halftoning the image data (column 9, lines 41-43 of Numakura). Therefore, it would have been obvious to combine Numakura with Matsuda in view of Bilgen to obtain the invention as specified in claim 18.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
16 May 2005

THOMAS D.
~~[illegible]~~ LEE
PRIMARY EXAMINER